

Syllabus: Models of the Universe from Hipparchos to Hawking

Spring 2005

Graham School

Master of Liberal Arts

Rocky Kolb

Lectures: Thursdays 6:30pm – 9:30 pm, Gleacher Center

The Solar System

Readings: Kolb, *Blind Watchers of the Sky*

March 31: Introduction to *Models*, introduction to cosmology, introduction to the universe, and a look at the sky. Greek astronomy through Ptolemy. Retrograde motion, epicycles, the Greek universe. Copernicus.

April 07: No Class.

April 14: Copernicus: The heliocentric universe. Brahe: Measuring the sky. Kepler.

April 21: Kepler: The laws of planetary motion. Galileo: The triumph of the scientific method.

April 28: Galileo: The tribulations and the trial. Newton: The clockwork universe.

Galaxies and the Universe

Readings: Hogan, *The Little Book of the Big Bang*

May 05: The distance scale.

May 12: The Realm of the Nebulae.

May 19: The birth and evolution of the big bang.

The Megaverse

Readings: Hawking, *A Brief History of Time*.

May 26: The inflationary universe: The universe from nothing.

June 02: Dark matter and dark energy

June 09: Before the big bang: The universe from less than nothing.